

LEWIS RIVER AQUATIC COORDINATION COMMITTEE

Facilitator: ERIK LESKO
503-412-8401

Location: Merwin Hydro Control Center: 105 Merwin Village Ct., Ariel, WA 98603 (in-person) and TEAMS (online)

Date: June 08, 2023

Time: 9:30 AM – 12:00 PM

AGENDA

9:30 AM	Welcome <ul style="list-style-type: none">➤ Review and Accept 06/08/2023 Agenda➤ Review and Accept 05/11/2023 Meeting Notes
9:40 AM	Public Comment Opportunity
9:45 AM	Coho Transition Plan Comment Review & Steelhead Transition Plan Introduction (<i>WDFW</i>)
10:45 AM	Decision Template: Proposed Revision to Ground Rules (<i>Lesko</i>)
11:00 AM	Study/Work Product Updates <ul style="list-style-type: none">➤ Flows/Reservoir Conditions (<i>Lesko</i>)➤ Reservoir Shoreline Development Projects (<i>ACC</i>)➤ WSDOT - Cougar Creek/Beaver Bay (<i>ACC</i>)➤ ATS (<i>Lesko, ATS</i>)➤ FPS (<i>Glaser, Olson</i>)➤ Fish Passage/Operations (<i>Karchesky</i>)➤ Merwin Trap Outage (<i>Karchesky</i>)
11:45 AM	Public Comment Opportunity Next Meeting Agenda
12:00 PM	Meeting Adjourn

Note: all meeting notes and the meeting schedule can be located at:
<https://www.pacificorp.com/energy/hydro/lewis-river/acc-tcc.html>

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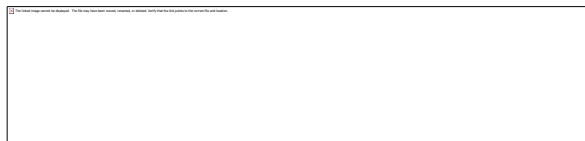
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**FINAL Meeting Notes
Lewis River License Implementation
Aquatic Coordination Committee (ACC) Meeting
June 08, 2023
IN PERSON and TEAMS Meeting**

ACC Representatives and Affiliates Present (17)

Larissa Rohrbach, Anchor QEA
 Nina Maas, Anchor QEA
 Christina E. Donehower, Cowlitz Indian Tribe
 Amanda Farrar, Cowlitz PUD
 Steve West, LCFRB
 Melissa Jundt, NMFS
 Chris Karchesky, PacifiCorp
 Erik Lesko, PacifiCorp
 Todd Olson, PacifiCorp
 Bryce Glaser, WDFW
 Josua Holowatz, WDFW
 Peggy Miller, WDFW
 Erin Peterson, WDFW
 Keely Murdoch, Yakama Nation
 Bill Sharp, Yakima Nation
 Steve Manlow, LCFRB
 Anne Baxter, Ecology
 Jeremiah Doyle, PacifiCorp

Guests (0)

None

Calendar:

June 08, 2023	ACC Meeting	IN PERSON and TEAMS Meeting
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Assignments:

Assignments from June 08, 2023	Status
ACC to review and provide comments on the Steelhead Transition Plan, due on July 7.	Complete 7/7/2023

Assignments from May 11, 2023	Status
ACC to review and provide comments on the Coho Transition Plan, due on May 30.	Complete

Assignments from May 11, 2023	Status
Farrar: Provide ACC with further documentation from Schnabel Engineering about the Swift No. 2 dam inspection details.	Complete

Assignments from March 9, 2023	Status
Glaser, Miller: Identify the types of decisions that should be brought from the FPS to the ACC to clarify protocols for the FPS.	Ongoing.

Assignments from November 10, 2022	Status
Karchesky: Discuss potential impacts of Merwin conveyance system work with the ATS to determine broodstock collection modifications.	Complete

Assignments from April 14, 2022	Status
Erik Lesko: Coordinate with the TCC regarding the timing for WSDOT’s Cougar Creek culvert project.	Ongoing. July 12-15 work period

Opening, Review of Agenda and Meeting Notes

Erik Lesko (PacifiCorp) called the meeting to order at 9:34 a.m. and reviewed the agenda. Minor revisions to the agenda were made; Lesko added Draft Decision templates and “Elements of Fish Passage” document. Meeting note revision and approval of May 11, 2023 notes is delayed until July meeting.

Public Comment Opportunity

None.

Lewis River Coho Transition Plan Comment Review (WDFW)

Bryce Glaser presented the Lewis River Coho Transition Plan Question and Response Matrix (Attachment A). Glaser discussed that comments were received on the *Lewis River Coho Transition Plan* (Coho Transition Plan) document from PacifiCorp and USFWS and that he would walk through those comments and discuss any concerns.

Glaser described the comments that the quantity of Coho Salmon to be released into Yale and Swift reservoirs was missing, and clarified that the scope of the Coho Transition Plan does not include the details for these numbers. He stated that this value will be documented in the Adult Transport Plans (ATP). He asked if there is an ATP in place? Chris Karchesky clarified that there are two ATPs currently in place, an upstream and downstream plan. He stated that both are in draft form and were prepared before the Merwin Upstream Collection Facility was rebuilt. Karchesky explained that both plans are extensive and discuss the quantities of fish per truck load going from the Merwin Upstream Collection Facility to Swift reservoir, but it was intended that these earlier documents would be revised as part of adding additional fish passage. Karchesky indicated that the ACC could revise these original documents or create new documents that include the new passage facilities. Glaser clarified that WDFW believes the

details of fish quantities should be present in the draft ATPs and not the transition plan, and that WDFW does not plan to add that information to the Coho Transition Plan.

Regarding any preference for early-fall (type S) Coho salmon for upstream transport, Glaser mentioned that Section 3.2.2. (stock origin) of the H&S Plan discusses the initial use of early type Coho salmon and goals of hatchery programs, Glaser reiterated that this comment seemed out of the scope of the transition plan, but that the ACC can discuss this as part of the Habitat Preparation Plans (HPP) for both Yale and Merwin systems. Lesko stated that the comment will be addressed in the HPP. Karchesky clarified that the Coho Salmon upstream release plan is moving towards collecting across the bell curve of the return timing, instead of a few large releases a few times a year. Glaser stated that there may still be a bimodal peak, and Karchesky said that is present for natural origin fish as well. Glaser clarified that the intent of the new release schedule is to be more representative of the natural return timing of Coho Salmon.

Glaser said the USFWS' comments on bull trout impacts are noted, and monitoring for bull trout should be part of the Aquatic Monitoring and Evaluation Plan (AMEP).

Erik Lesko asked if the ACC needs to make changes to the HPP? Jeremiah Doyle said there will be no weir this year installed in Cougar Creek, but the creek will still be heavily wired and they will again PIT tag about half of the HPP coho. Glaser stated that there is an annual review of the HPP, but it likely does not need major changes. Josua Holowatz said hatchery-origin returns (HORs) will be used this year, but the following year will need a more in-depth review when using more natural origin returns (NORs). Lesko asked Larissa Rohrbach to make a note of updates needed to the Annual Operating Plan (AOP) on fish numbers, and HPP on monitoring in upper tributaries for future discussion by the Aquatic Technical Subcommittee (ATS).

Glaser presented the next questions in the comment matrix about water temperature, and date range for broodstock collection, regarding the schedule of collecting brood in January. Glaser stated that WDFW wanted to call out that the collection table in the document is an example, and the true table will be displayed in the AOP. He noted that edits were made in the document to move the schedule to January.

Glaser then reviewed the following comment matrix question about brood collection and stated that it has the same response as above changes made in the document. He also reviewed an added a reference that was requested.

Glaser presented several questions about the harvest section. He stated that the Lewis Coho Transition Plan presents a conceptual framework due to the lack of data or lifecycle modeling work which will update habitat capacity targets. Glaser posed the question to the ACC of how to use hatchery fish during recovery stages. He stated that until there is more data, WDFW wants the ability to use HORs to supplement Coho Salmon populations. He stated that in all tributaries, proportion of hatchery origin spawners (pHOS) would be managed, and harvest would be controlled. He stated that he has tried to be very clear that more data is needed, and the information provided in the Coho Transition Plan is conceptual.

WDFW added language to the Coho Transition Plan that total returns to the Lewis River are based on returns to the Merwin Upstream Collection Facility and Lewis River Hatchery Trap. Glaser stated that in-season management is currently based on returns to these facilities and whether there are enough fish to meet brood collection targets and to meet upstream transport

goals. There are no tools or models currently to predict the number entering the Lewis River. Karchesky asked if WDFW will include returns to upstream of Merwin Dam? Glaser said yes but WDFW have not agreed to specific minimums targets for upstream transport. Glaser stated that there is a need to formally identify minimum numbers of fish to move upstream to manage fisheries. Once formally identified WDFW would manage for the target and if the target cannot be met, then WDFW would potentially restrict fisheries. Karchesky asked if WDFW were using Ecosystem Diagnosis and Treatment (EDT)-derived numbers of estimated capacity. Glaser said yes, and that the ACC needs more information to determine a final number.

Glaser moved on to the next question regarding upper basin harvest. Glaser stated that WDFW and the ACC have not decided when upper basin harvest should become an option, if ever, but WDFW does not believe all fish harvest goals must be met with natural origin fish. Glaser stated that WDFW believes the main goal is to have a healthy population of natural origin fish, but also that there is a middle ground for allowing harvest using hatchery fish as an option. WDFW wanted to include all ranges of scenarios in the framework for potential transition plan options. Steve Manlow stated that he asked a question about the phrase “healthy and harvestable” and not needing to supplement with hatchery fish, but he did not see where this concern was reflected in the comments. Glaser clarified that the questions Manlow asked about the Coho Transition Plan were addressed at the May 25 ATS meeting and resolved. Glaser said that the questions Manlow asked, in conjunction with PacifiCorp’s questions, led WDFW to create a new conceptual framework section in the transition plan which is now incorporated into the draft now. He stated that the comments being presented today are only those received from the ACC, but agreed to continue discussing this topic.

Glaser stated that the harvest frameworks evaluated for transition plan alternatives are based on current management status and have a potential conceptual future state. There is a harvest mitigation requirement within the Settlement Agreement which states that hatchery production is based on achievement of ocean recruits, which is also described in the AMEP. Glaser stated that work needs to be done to establish triggers and a decision about the use of hatchery fish cannot be made until the ACC have more information from future modeling efforts. He stated that if there is achievement of the fish collection targets, the population still may not be “healthy and harvestable” with only natural origin fish. He asked if the ACC could support an interim strategy where natural origin fish are transported and pHOS is managed to meet the target of 0.67, while allowing harvest of hatchery fish. He stated that WDFW is uncomfortable ruling out that alternative strategy until the goals stated in the Settlement Agreement are met.

Karchesky agreed, but stated that he wanted to understand the phrase “Upper Lewis River abundance”, and why the framework for a fully seeded upper basin still included hatchery fish. He stated that at full recovery and fully seeded populations, the Coho Transition Plan still includes the use of hatchery fish being transported upstream. Glaser stated that the table in question by Karchesky is titled “Long Term” and is not intended to be tied to any phase of recovery. Karchesky stated that in terms of the Settlement Agreement, he believed that when the reservoir is fully seeded, hatchery fish are designated for supplemental use in the Lower Lewis River. Glaser stated that the table presents a framework for future discussion about the inclusion of hatchery fish upstream. Karchesky stated he would like Glaser’s statements to be added to the Coho Transition Plan document, and Glaser added language to clarify the framework is focused on local adaptation and conceptual long-term state that meets the goals of the Settlement Agreement, and not tied to a given phase of recovery.

Manlow was concerned with leaving the door open for long-term harvest supplementation using hatchery fish, especially 15 years down the road if you then need to continue to manage for pHOS. Glaser noted that Coho Salmon likely are the species that provides the best opportunity for having a healthy harvestable natural origin population. Glaser stated that the table in the Coho Transition Plan is intended to show how things could be managed if hatchery fish are part of the program in the future, because the programs have dual objectives (harvest mitigation and fisheries). Karchesky stated that there is a possibility in the future to have harvest in the upper basin. Manlow suggested another sentence be added so that it is clear the framework presented in the Coho Transition Plan does not endorse any specific management strategy in the future and Glaser added this statement to the document. Glaser specified that the Coho Transition Plan is meant to supplement the Hatchery and Supplementation Plan (H&S Plan), and is not envisioned to be a standalone document, meaning it could be updated or replaced during future revisions of the H&S Plan.

Christina Donehower asked if the response matrix document was sent to the ACC. Nina Maas sent document to the group again.

Glaser moved on to discuss questions regarding excess HOR Coho Salmon. Karchesky asked how the excess HOR language in the Coho Transition Plan relates to the transition phase. Glaser clarified that during the local adaptation phase, WDFW is still concerned that the population may not be stable enough to pull all hatchery fish out (for broodstock or surplus, and not transport upstream). Karchesky asked what excess HORs means to WDFW; if the population is established at what has been decided as the carrying capacity, what happens if there is a high smolt-to-adult return (SAR) of HOR fish? He wanted to understand the intent of what would happen when the population is fully seeded. Glaser stated that there is still uncertainty around the need for HOR transport upstream, and there is a buffer needed to allow for future management discussions. Karchesky wondered what the scenario of transporting HOR to the upper basin would mean for capacity, genetic variation, elevated pHOS, and bull trout.

Melissa Jundt asked if in the future the upper basin is fully seeded, if some fish would be taken out, or if there would be a need to install weirs because of managing pHOS. She asked if there will be spawning concerns. Glaser said he is aware of the issues other river systems have had, and WDFW is hoping to manage the Lewis River populations at the upstream passage facilities to establish a stable population without having similar issues. Manlow added that the LCFRB is cognizant of concerns about using harvest to manage pHOS. Glaser agreed, so WDFW wanted to discuss future harvest conceptually with the ACC now, although the Coho Transition Plan is not designed to determine harvest plans for the future.

Todd Olson mentioned that he agrees that these are all options for management to discuss in the future. He believes that as long as that is abundantly clear, and no preference is made in the Coho Transition Plan, then PacifiCorp would feel more comfortable with the language in the document. Glaser agreed, the thought in the Coho Transition Plans is to describe a hatchery plan, and WDFW wanted to outline what the fish could potentially be used for in the future (surplus, harvest mitigation etc.). Manlow asked if WDFW will be seeking coverage for all these options in the hatchery and genetic management plan (HGMP). Glaser said that the HGMP does not cover fisheries management at all.

Glaser described the Coho Transition Plan phases. He stated that Phase 1 will begin with a status quo split between the integrated and segregated (early coho) program, then Phase 2 will consist

of gathering data on program performance, completing modelling described in the AMEP and assessment of data, including determining what supplemental information is needed. Phase 3 is the adaptive management phase where programs will be adjusted based on performance. He stated that the HGMP will request ESA coverage for a scenario where the entire program (all 2 million fish) are derived from the integrated program.. He stated there will likely be back and forth with NOAA Fisheries about this during HGMP consultation.

Karchesky questioned a scenario where numbers of NORs exceed the base goal for a sustainable population, and questioned whether hatchery fish would still be placed upstream? Glaser agreed that in this case hatchery fish would not be moved upstream. Lesko clarified that the updated estimated capacity for the upper basin based on EDT numbers is 9,000 adults, Glaser said ACC revised to up to 9,500, but the Hatchery and Supplementation (H&S) number has not been updated to reflect this yet. Glaser stated that there is confusion about how to manage for that number. For example, he asked if HORs are considered one-for-one equivalents with NORs for transport goals?

Karchesky asked where this number is discussed, and Glaser replied it is in the AOP. Glaser clarified his question, that if the 9,500 fish target is hit partially through the year, whether the program would stop transporting NORs upstream? Karchesky said no, additional NORs (in excess of broodstock needs) will always be passed upstream. Glaser said that he does not believe the Coho Transition Plan is the right place to discuss this question. Karchesky said that it has usually been fairly easy to manage the Coho Salmon run and there hasn't been an issue with excess NORs. Rohrbach clarified that the 2023AOP identifies that the number of NOR moved upstream may be adjusted in-season, and suggested adding language to make it clear the number is not a hard ceiling. Glaser suggested the ACC add a statement to the Coho Transition Plan or AOP that the modeled capacity number can be exceeded with transport of NORs and Karchesky agreed.

Glaser said this Coho Transition Plan version is final as edited in today's meeting, and he hopes to receive approval for it, and then discuss the Steelhead Transition Plan comments in the next ACC meeting.

Lesko suggested the ACC delay discussion of project updates in the meeting to continue discussing both Coho and Steelhead Transition Plans and the ACC agreed to delay other project updates until the next meeting.

Lesko added that there is a requirement in the Settlement Agreement to make a statement to the Services on reintroduction progress by 2025. Glaser did not think that would be relevant to the Coho Transition Plan; Lesko agreed and said the ACC can leave that discussion for the H&S Plan update in 2025.

Glaser mentioned that PacifiCorp has made changes to terminology to now refer to the Merwin Fish Facility as the Merwin Upstream Fish Passage Facility. Karchesky clarified that it has changed because of plans to add new facilities in the future, and it should be called the Merwin Upstream Fish Passage Facility in all documentation moving forward.

Lewis River Steelhead Transition Plan Introduction (WDFW)

Glaser stated the *Lewis River Steelhead Transition Plan* (Steelhead Transition Plan) has gone through one round of revision at the ATS level and all input has been incorporated into the draft document, shared with the ACC on Monday, June 5, 2023. Kale Bentley gave a detailed overview to the ATS of the modeled alternatives for the program, which is attached with the plan for those who would like to review (Attachment B). Glaser stated that he is happy to answer questions now or later and wanted to discuss the recommendations to the ACC. Glaser presented a summary slide with WDFW recommendations for the Steelhead Transition Plan.

Glaser described the current steelhead programs. The first is a conservation program in which 50,000 smolts are released and are managed solely for reintroduction. The second is 100,000 early winter steelhead, and the program utilizes fish that are Chambers Creek stock derivatives, which has been used throughout the region to create an early-timed stock for harvest. He stated that there are concerns with using the Chamber Creek stock fish because it is a Puget Sound derivative and could genetically impact natural-origin fish. Glaser stated that Chamber's Creek stock is still being used in the coastal strata where the steelhead are not listed under the Endangered Species Act. Glaser stated that within the Lower Columbia River Distinct Population Segment, the goal is to transition away from using Chambers Creek stock. He stated that WDFW looked at harvest contributions of this program, and initially wanted to recreate a similar early-timed program to what is being done on the Cowlitz. However, he stated that after further analysis, it is recommended that the early-winter steelhead harvest focused program transitions to a program that parallels the NOR return timing, rather than recreating an early timed program. Glaser mentioned that Chamber's Creek program contributions to harvest have shown decline in recent years, and it is unclear exactly why (if it had to do with angler interest, or river conditions, or some other factor), so after alternatives were reviewed, WDFW felt it was best not to attempt to re-create the timing of the Chamber's Creek program. WDFW felt it would be better to transition to an integrated program later in the season, at a time of year that would improve harvest opportunity and contribution to creel.

Glaser reviewed the slide which described the Steelhead Transition Plan goals. He stated that the ATS supported keeping a 50,000 -smolt program for conservation/reintroduction and then transition from a 100,000-smolt harvest augmentation release using Chamber's Creek winter steelhead to a stepping-stone variant program. He described that the stepping-stone program would be reduced from a production goal of 100,000 to 75,000 and would move 25,000 offspring from the winter-run program to the summer-run program to supplement summer steelhead harvest. The final summer harvest populations would transition from 175,000 fish to 200,000 fish. He stated that the stepping-stone progeny would only ever be 1 to 2 generations away from the NORs, which would minimize genetic impact.

Glaser stated there is a summary section of the Steelhead Transition Plan that everyone in the ACC should read as it discusses the details of this phased approach. He described that like the Coho Transition Plan, Phase 2 is designed to use the data to make decisions on performance, and Phase 3 is adaptive management phase where proportions of each of these programs would be shifted based on returns. Glaser asked Lesko how many generations are listed in the H&S plan for the conservation program. Lesko clarified 4 generations. Glaser stated that 4 generations would align with the need to reevaluate that program. Glaser stated that in WDFW's view the stepping-stone program is a step forward towards "Recovery" because of its focus on improving genetic integrity of the harvest program while maintaining the conservation program numbers.

He said that overlap of the harvest program run timing with the NOR population would have an impact on the natural population, but would improve genetic integrity of the HOR stock (compared to Chamber's Creek program), because the HORs would be a derivative of the NOR fish. Glaser stated that modelling of the alternative scenarios based on maintaining a proportionate natural influence (PNI) target of 0.67 showed genetic impacts were almost identical to the conservation program. Glaser stated that a real issue is need to maintain a harvest mitigation program. WDFW wanted to create a Steelhead Transition Plan that identified an alternative in a way that put conservation first, increases harvest opportunities, and reduces impact to the NOR population.

Lesko asked why it was not suggested to operate a fully integrated program only, as there would be no genetic interference and no excess fish. Glaser said this alternative was modeled and ruled out for Phase 1. He stated that based on the modeled number of NORs, the program would be too "brood hungry" and in low abundance years very few NOR fish would be transported upstream. He stated that the stepping-stone plan would not require as many NORs. He stated that the fully integrated program was WDFW's first choice as well, and when, or if, NOR abundance allows, the program can shift to this management strategy.

Lesko said he needed to review the modelling assumptions again, as he does believe a fully-integrated plan would be easier to implement than the steppingstone, logistically and with less potential for adverse genetic risks. Glaser stated that the integrated program target is 100% proportion of natural origin broodstock (pNOB) and to prioritize upstream transport of NORs. He stated that all progeny would be only 1 step away from NOR, potentially 2, because the brood stock source is NOR fish. Glaser stated that interaction on the spawning ground does occur, but modelling shows the genetic impact is low, especially using NOAA Fisheries' multi-population PNI tool. Glaser stated that WDFW does not see much of a difference genetically, but understands the logistical concerns. Glaser and Lesko will set up a time to discuss the modeling assumptions further.

Manlow posed a question about the assumptions on modelling; he asked how much did juvenile collection efficiency impact results or drive evaluation of alternatives? Glaser said it was included and was modelled for 2 scenarios, a 30% collection efficiency (which is the average current efficiency) and a 95% (the required SA efficiency).

Glaser stated that theoretically with minor increases in NOR abundance and improvements in juvenile collection efficiency, transition to the fully integrated program can happen quickly.

Coho and Steelhead Transition Plans Decision Document

Glaser presented the decision template. He highlighted that this document is coming from WDFW in conjunction with ATS, and highlighted the requested action. Glaser said WDFW wants to adopt both Coho and Steelhead Transition Plans as supplements to the H&S Plan. He said he would like to receive comments and edits before the next meeting.

Lesko asked how to provide edits for this decision document. Glaser asked that the ACC add comments to the bottom of the Comment Matrix. He stated that major concerns need to be addressed before this is finalized.

Update on Fish Passage Document

Todd Olson stated that the “Elements of Fish Passage” (Elements) document is near final, and will review the document and the Draft Decision document one last time before it is distributed to ACC. One item in the “Elements of Fish Passage” document is to identify compensatory mitigation dollars for the delays of fish passage. Olson stated that there are two issues. He stated the first issue is the delay between Settlement Agreement dates and dates in the recommended by the Services and the second issue is PacifiCorp requesting to delay Merwin Dam downstream passage from 2028 to 2032 due to construction. The second delay is driven by a dam safety project that could change how the Merwin Dam spillway area functions. He stated that PacificCorp agrees that mitigation needs to occur.

Olson presented a table calculating mitigation values created by Eli Asher (formally of the Cowlitz Indian Tribe). Olson explained the calculations and provided justification for PacifiCorp’s offer. Olson indicated that PacifiCorp is willing to provide the full amount for the Merwin downstream passage delay from 2028 to 2032. This mitigation value adds up to \$1.79 million. Keely Murdoch asked how the inflation rate was determined, and Olson stated that the inflation rate calculation is in the Settlement Agreement.

Glaser clarified that the Merwin downstream passage delay was discussed in the Fish Passage Subgroup (FPS) and the four-year delay is in addition to the Services’ suggested date, and not the Settlement Agreement date.

Olson presented Asher’s calculations for the delay between Settlement Agreement dates and dates recommended by the, which totals to \$3.44 million. Olson stated that a lot happened during the delay period and PacifiCorp does not have an interest in clarifying exactly which months were delayed for which reason or assigning responsibility to different parties. He stated that the Utilities (PacifiCorp and Cowlitz PUD) are willing to provide half (50%) of that amount yielding \$1.72 million. PacifiCorp will contribute \$1.79 million for the future delay and the Utilities would contribute \$1.72 million to account for part of the past delay totaling \$3.51 million. Olson stated that PacifiCorp cannot have all funds available this year but plans to split this out over a 4-year period (\$877,879 per year). He stated that the money would be deposited into the Lewis River Aquatic Fund. He clarified that the fund would then be receiving the remaining contributions identified in the Settlement Agreement plus these mitigation funds. Lesko clarified the 2022 value of the Aquatic Fund contribution at \$330,000. Future deposits will increase based on the inflation rate. Peggy Miller asked if the contribution for delays would collect interest and be treated the same as the Settlement Agreement for the Aquatic Funds. Olson replied yes, it would just become a new line item. Josua Holowatz asked if the funds could be used on the Yale and Merwin basins? Olson said yes.

Olson stated that last week he provided a near final version of the “Elements of Fish Passage” document to the FPS with a draft decision document, The “Elements of Fish Passage” document and decision document are now being shared at the ACC for approval at the July ACC meeting due to the finances involved.

Olson stated that the FPS will review comments and finalize the “Elements of Fish Passage” document today so that the document can be distributed to the ACC next week. He stated that

there will likely be a decision document to be completed for the July ACC meeting. After this decision is made at the ACC, the document will be distributed to FERC.

Manlow stated he does not understand how the 50% of the delay value was determined and would like to better understand why the Utilities feel that is appropriate. He also mentioned that Merwin has a new delay, and asked if it is appropriate to deduct time to date. Manlow stated he is also concerned about the 4-year spread of funds. He asked if there is a way to frontload distribution of funds over 2 years or to frontload use of existing ACC funds and back fill with mitigation funds. Manlow stated he believes this funding strategy could lead to more robust projects. He also posed the question of earmarking these funds for Merwin or Yale reservoirs.

Olson stated that the 50% value came after discussing with the new PacifiCorp Vice President, who wanted to ensure that all parties involved would continue to work together well. Olson stated the 2028 Merwin delay date came from the Services. He stated that shifting funds to be distributed in 2 years is something he can investigate. Olson said that in the case of a 2-year distribution plan, 25% of funds would likely be the maximum distribution during year-1 based on current financial projections, but year-2 could potentially distribute 75%. He mentioned that earmarking can also occur, but the ACC will need to decide where the funds will be used.

Manlow stated that a 2-year funds distribution timeline would give ACC and others time to perform outreach and ready sponsors for projects. He stated that there is interest in doing work in the both the Yale and Merwin reservoirs.

Glaser asked if the Aquatic Fund is gaining interest. He stated that WDFW would be supportive of preferences for fund use at Merwin and Yale but may not support earmarking funds. Holowatz agreed. Miller asked if the mitigation funds distributed in later years account for inflation. Olson noted that the contributions for delay will account for inflation and that interest is being accrued in the Aquatic Fund account. He said he would review the budget to determine if a 2-year distribution timeline is possible.

Manlow stated he does not want to imply LCFRB is satisfied with the Utilities funding 50% of the mitigation delay value for the delay between the dates in the Settlement Agreement and those recommended by the Services.

Glaser said WDFW has had internal discussion and wants to have the complete “Elements of Fish Passage” document before commenting, but is willing to discuss the draft.

Melissa Jundt asked for conversation/caucus between the agencies and other organizations. Glaser said that can be arranged, and Jundt asked for a timeline. Glaser said he will follow up.

Olson clarified that he is hopeful these are the final edits of “Elements of Fish Passage” document and final numbers will be distributed to the ACC next Monday for 30-day review. Jundt asked what is needed for the approval documentation. Olson clarified that the decision document will go out with the “Elements of Fish Passage” document. Glaser clarified there is a 30-day review period and then a consensus-based vote at the ACC meeting. Glaser also discussed the nonconsenting opinion. Glaser indicated that 30 days might not be enough time for members to review the document and present the information to their organizations.

Lesko discussed the differences between agreement of the ACC and agreement of the Services. Olson stated that the Services need to also approve separately.

Decision Template: Proposed Revision to Ground Rules

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

Study/Work Product Updates

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

Flows/Reservoir Conditions Update

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

WSDOT – Cougar Creek

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

ATS Update

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

FPS Update

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

Merwin Trap Outage

Karchesky stated that starting July 5, 2023, there will be an outage of the Merwin Fish Trap for one month, and there is discussion happening in the ATS level about broodstock collection activities for summer steelhead.

Lewis River Fish Passage

See Attachment C.

Merwin Fish Passage Update (see also Attachment D)

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

Swift Floating Surface Collector (see also Attachment E)

No time sensitive updates. All updates delayed until following meeting due to meeting time limit.

Administrative Updates

None.

Public Comment Opportunity

None present.

Agenda Items for July 11, 2023

- Study/Work Product Updates
- Decision Template: Proposed Revision to Ground Rules
- Decision Document: Lewis River Coho Transition Plan and Lewis River Steelhead Transition Plan

Adjourn 12:27 pm

Next Scheduled Meeting

July 13, 2023
Teams Call
9:30 a.m. – 12:00 p.m.

Meeting Handouts & Attachments

- Agenda from 6/11/2023
- **Attachment A** – Coho Transition Plan and Coho Transition Plan Comment-Response Matrix and Steelhead Transition Plan
- **Attachment B** – Lewis River Winter and Summer-run steelhead Hatchery Transition Plan
- **Attachment C** – Lewis River Fish Passage Report (May 2023)
- **Attachment D** – Merwin Adult Trap Collection Report (May 2023)
- **Attachment E** – Swift FSC Facility Collection Report (May 2023)

Lewis Coho Transition Plan Review- ACC Question and Response Matrix

Distributed To ACC April 25, 2023

Org.	Page	Text/Section Reference	Comment/Question	WDFW Response
US Fish and Wildlife Service	p. 12; p. 18	Adult Transportation & Disposition Tables	The proposed quantity of adult coho to be released into Yale and Swift reservoirs is unclear. Please provide additional detail. USFWS continues to prefer early-fall (type S) coho to be prioritized for release in these reservoirs to limit superimposition of bull trout redds. USFWS would also appreciate a slow introduction of coho into these reservoirs to document any competitive interactions that may occur between coho and bull trout.	Upstream transport quantity and other protocols for reintroduction are outside the scope of the transition plans and will be detailed in the Fish Transport Plans associated with fish passage implementation. H&S plan section 3.2.2 describes the stock origin for coho supplementation.
PacifiCorp	19	Water conditions	Is this temp?	Yes temperature
PacifiCorp	20	Adult Transport and Disposition Table	Date range collect brood into Jan?	Collection table in doc. is an example only based on recent return timing. Actual collection goals will be set via Annual Operating Plan
PacifiCorp	20	Adult Transport and Disposition Table	I don't believe brood collection goes into the new year.	See previous response
PacifiCorp	22	Fish Management Strategy	This section needs to specific reference to Section 8.3.2.3 (reductions in hatchery targets) as part of any long-term strategy and as it relates to the reintroduction outcome goal.	Added reference to this section.

PacifiCorp	24	Table: Long Term Conceptual Harvest Framework	In season management based on actual Lewis Hatchery and Merwin FF returns? Replace with "back to Lewis River"	There is currently no in-season estimate of river mouth returns available. When this method is developed, we will use this tool as well. We modified language in framework to include and or back to Lewis River.
PacifiCorp	24	Table: Long Term Conceptual Harvest Framework	Upper basin harvest should only follow after achievement of the priority objective of recovery of wild stocks in the basin to healthy and harvestable levels.	This is a conceptual framework. The determination of when upper basin harvest should be implemented has not been decided and will come through future discussions as described in the Fish Management Strategy Section.
PacifiCorp	24	Table: Long Term Conceptual Harvest Framework	HORs used to supplement NORs to reach upstream transport goals? What is excess HORs here?	See previous response. This will depend on recovery phase and future agreement on management targets
PacifiCorp	24	Table: Long Term Conceptual Harvest Framework	If Excess NORs transported upstream, then no HOR supplementation needed upstream. Not sure what is being referred to here.	We did not find a reference to "excess NORs" in the doc.
PacifiCorp	25	Harvest Management Notes:	Not sure I follow – transport target is based on the EDT capacity estimate of adult coho needed to fully seed the available habitat existing upstream of Swift Dam. HOR coho are used to supplement this target, but to achieve the Reintroduction outcome goal adults should be composed entirely of NOR.	It appears from your answer that your understanding is that the transport target applies to NORs. If this is the case, more detail is needed on how HOR vs NOR transport occurs in season. We suggest that this be discussed at ATS/ACC

Hatchery Transition Plan

Program(s): Lewis River Winter and Summer-run steelhead

Affected Recovery Population and Recovery Designation:

Population Name	Population Recovery Designation
Lewis River Winter-run Steelhead	Contributing

Overview

This document provides a synopsis of the current and alternative hatchery programs for North Fork (NF) Lewis winter and summer-run steelhead. The overall goal of this document is to identify a program or suite of programs that maximizes the probability of achieving the Anadromous Fish Reintroduction Outcome Goal (Reintroduction Outcome Goal) as outlined in Section 3.1 of the Lewis River Hydroelectric Project Settlement Agreement (SA): to achieve genetically viable, self-sustaining, naturally reproducing, harvestable populations above Merwin Dam greater than minimum viable populations and advance population(s) to the next Recovery Phase.

Currently, hatchery steelhead production in the NF Lewis River consists of three separate programs. Two of the programs (one summer, one winter) are operated as segregated programs and have the objective of augmenting harvest opportunity. The summer-run hatchery program uses Skamania-derived broodstock and aims to release 175,000 smolts annually directly from Merwin hatchery, plus another 60,000 smolts that are released from an in-river cooperative net pen in the lower NF Lewis. The segregated winter-run steelhead program uses Chambers Creek derived broodstock and aims to release 100,000 adipose-clipped smolts annually. Chambers Creek hatchery steelhead originally came from Puget Sound and thus, is an out-of-ESU stock. The second winter-run steelhead program in the NF Lewis is operated as an integrated hatchery program and primarily uses natural-origin adults for broodstock to produce the annual planting goal of 50,000 unclipped (Adipose fin intact) Blank Wire Tagged (BWT) smolts. The objective of the integrated program is to help conserve the natural-origin population by generating adults that can be used for reintroduction into the upper NF Lewis River above Merwin Dam (currently above Swift Dam only).

In preparation for consultation with NOAA Fisheries on the forthcoming NF Lewis Hatchery Genetic Management Plans (HGMPs), the Washington Department of Fish and Wildlife (WDFW) completed an evaluation of alternative hatchery strategies for NF Lewis steelhead using a structured decision-making approach. Briefly, the evaluation consisted of five parts: defining the problem, determining the objectives, identifying alternative hatchery strategies, forecasting the consequences, and evaluating the trade-offs of each strategy. In total, the current segregated Chambers Creek hatchery program (i.e., strategy status quo) was compared with three alternative strategies using a life-cycle model across a range of scenarios and a suite of standardized metrics that were separated into conservation and harvest-based categories. Additional details on the alternative hatchery strategy evaluations for NF Lewis steelhead can be found in Appendix A. Based on the results of this evaluation, WDFW recommended updating the NF Lewis steelhead hatchery programs using a phased approach.

During the first phase of the transition, the existing integrated conservation winter-run program (50,000 smolt plant) will be maintained and the largest programmatic change will be to eliminate the segregated

Chambers Creek winter-run program, and replace it using a “stepping stone” approach (HSRG 2014). This new winter-run, harvest mitigation hatchery program will be derived using adult returns from the winter-run conservation program. Unlike the Chambers Creek program, which is a fully segregated and domesticated stock derived from outside the lower Columbia River ESU, this new stepping stone program will use returning in-basin, first generation (F1) adults to maintain genetic continuity between the localized hatchery and natural-origin population thereby reducing genetic risks. This program is a slight variation from a traditional “stepping stone” program in that rather than slowly increasing the size of the integrated portion of the program as natural origin abundance/availability increases, this program will maintain consistent production goals for the integrated and stepping stone components until a second phase evaluation (described below) is completed. Also, this “stepping stone variant” program will only select BWT positive, adipose intact adults (F1s) for broodstock to propagate this program, meaning the broodstock will always be only one or two generations removed from natural origin parents, unlike a standard segregated program. The second change proposed during the first phase of the transition will be to transfer 25,000 smolts from the winter-run harvest program to the summer-run harvest program. This change will result in the stepping-stone variant winter-run program aiming to produce 75,000 Adipose fin (Ad) clipped smolts annually and the summer-run program aiming to produce 200,000 (plus the current 60,000 net pen) Ad clipped smolts. Based on WDFW’s evaluation, this reallocation of smolts will provide conservation and harvest benefits.

The second phase of the program will include evaluation of the updated program’s performance to ensure that the integrated program is meeting conservation objectives of returning enough fish for broodstock and reintroduction needs, and to ensure the “stepping stone variant” program is meeting harvest objectives. This phase will also include an assessment/refinement of recovery phases and phase triggers. Additionally, planning for fish passage into Yale and Merwin reservoirs is underway, which will include development of transport targets and strategies for steelhead into those reservoirs for reintroduction purposes.

The third phase of the program will use evaluation results, hatchery reform phases and phase triggers and additional hatchery fish transport goals for Yale and Merwin recolonization phases to adaptively manage production size and the split between harvest and conservation programs to ensure the Reintroduction Outcome Goal and harvest objectives will be met.

Ultimately, these programmatic changes are designed to ensure adult abundance of hatchery fish available for reintroduction and harvest and improve integration of fish used for reintroduction to better represent the historical natural-origin steelhead populations in the North Fork Lewis River.

List of Acronyms Lewis Steelhead Transition plan

Ad	Adipose-fin clip
ACC	Aquatic Coordination Committee
AHN	Above Hatchery Need
AMEP	Aquatic Monitoring and Evaluation Plan
AOP	Annual Operating Plan
BWT	Blank Wire Tag (snout)
CBP	Columbia Basin Partnership
Fpp	Fish Per Pound
H&S	Hatchery and Supplementation Plan
HOR	Hatchery Origin Returns
HSRG	Hatchery Scientific Review Group
NOAA	National Oceanographic Atmospheric Association
NOR	Natural Origin Returns
pHOB	Proportion of Hatchery Origin Broodstock
pHOS	Proportion of Hatchery Origin Spawners
PNI	Proportionate Natural Influence
pNOB	Proportion of Natural Origin Broodstock
QET	Quasi-Extinction Threshold
Rmax	Maximum recruitment under average environmental conditions
VSP	Viable Salmonid Population
WDFW	Washington Department of Fish and Wildlife

Recovery Phases and Goals

The goals included in this section are derived from the Lewis River Settlement Agreement and the Healthy and Harvestable concept outlined by the Columbia Basin Partnership Task Force. Recovery phases are defined by the HSRG (2020).

Settlement Agreement Section 3: Anadromous Fish Reintroduction Outcome Goals

“The reintroduction outcome goal of the comprehensive aquatics program contained in Sections 4 through 9 of the Lewis River Settlement Agreement is to achieve genetically viable, self-sustaining, naturally reproducing, harvestable populations above Merwin Dam greater than minimum viable populations (“Reintroduction Outcome Goal”).”

Healthy and Harvestable Defined:

As stated in *A Vision for Salmon and Steelhead Goals to Restore Thriving Salmon and Steelhead to the Columbia River Basin. Phase 2 Report of the Columbia Basin Partnership (CBP) Task Force of the Marine Fisheries Advisory Committee- October 2020.*

https://s3.amazonaws.com/media.fisheries.noaa.gov/2020-10/MAFAC_CRB_Phase2ReportFinal_508.pdf?null

“The intent of this plan is to achieve Healthy and Harvestable abundance levels that would sustain very high levels of species viability, significant fishery opportunities and harvest as well as recover upper basin steelhead populations with the near-term goal of preventing population declines and the long-term goal of achieving ESA delisting through expanded diversity and resiliency.”

Goal of current integrated and proposed stepping stone variant winter-run program by recovery phase (i.e., conservation/harvest):

Population Recovery Phase	Goal of Hatchery Program	Thresholds/Triggers/Decision Rules required to transition from one phase to next
Preservation	Conservation (promote recovery) and harvest	<p>Natural origin population at risk of extirpation</p> <p><i>Not applicable – as population is already past this phase.</i></p> <ul style="list-style-type: none"> 5 yr. geomean total abundance (when counting NOR adults, plus HOR adults up to the number which would cause pHOS to equal the pHOS goal for Local Adaptation) is LESS than the quasi-extinction threshold (QET to be determined during Population Phase Assessment). Vast majority/all historical habitat is unusable/heavily impacted/inaccessible currently (e.g., blocked by dams with no passage)

<p>Recolonization</p>	<p>Conservation (promote recovery) and harvest</p>	<p>Natural origin population at low abundance; habitat underutilized.</p> <p>Lewis winter steelhead (considered one population) is assumed to be in this phase.</p> <ul style="list-style-type: none"> • 5 yr. geomean total abundance (when counting NOR adults, plus HOR adults up to the number which would cause pHOS to equal the pHOS goal for Local Adaptation) is MORE than quasi-extinction threshold but LESS than the number needed to meet the interim viability goal (NOAA VSP criteria or alternative). • Interim viability goal can be expressed as seeding a percentage (e.g., 50%) of the freshwater habitat, and can be estimated by stock recruit analysis (e.g., estimate spawner abundance required to produce 50% of R_{max}). • Enough historical habitat is currently accessible (including by trap and haul) for maintenance of an equilibrium population size greater than QET (to be determined during Population Phase Assessment).
<p>Local Adaptation</p>	<p>Conservation (promote recovery) and harvest</p>	<p>Natural origin population nearing full seeding of currently available habitat.</p> <p>Assuming current population is not yet in this phase.</p> <ul style="list-style-type: none"> • Develop/Confirm assessment criteria for trigger(s) <ul style="list-style-type: none"> ○ Escapement ○ R_{max} ○ Adult to adult productivity ○ Number needed to meet the interim viability goal (NOAA VSP criteria or alternative). • Early within the duration of the revised H&S Plan, the ATS will develop these criteria, incorporating biological, logistical, and management considerations. <ul style="list-style-type: none"> ○ Such as integrating R_{max}, SAR and/or adult to adult productivity into phase triggers.
<p>Full Recovery</p>	<p>Maintain Recovery and provide Harvest</p>	<p>Natural origin population is both above full-seeding of available habitat AND is meeting the Reintroduction Outcome Goal (harvestable recovery goals).</p> <p>Assuming current population is not yet in this phase. Revisit criteria if population assessment confirms populations are currently in Local Adaptation phase.</p> <ul style="list-style-type: none"> • 5 yr. geomean of spawner NOR abundance (not counting HORs) is MORE than minimum interim viability objective when only counting NOR spawners and is also At or MORE than healthy/harvestable recovery goal. • CBP Task Force Healthy Harvestable Goal: 3,000

Current Lewis Hatchery Steelhead Program(s)

This section provides a description of the current hatchery programs affecting the North Fork Lewis steelhead population.

Current Program #1: Early segregated winters (aka Chambers)

Population Recovery Phase: NA

Goal of Program: Harvest augmentation/mitigation

Population Recovery Phase: NA

Adult Broodstock Collection	
Broodstock Type	Lewis Segregated HOR adults
Broodstock Source	F1s from early segregated winter program (in-basin)
Broodstock Collection location(s)	Lewis Hatchery Merwin Upstream Collection Facility
Integration Rate	0% (segregated; hatchery-origin brood only)

Collection timing:

Broodstock Collection

Week Ending	Brood Adults	Males	Females
4-Dec	5	2	3
11-Dec	6	3	3
18-Dec	6	3	3
25-Dec	12	6	6
1-Jan	11	5	6
8-Jan	12	6	6
15-Jan	16	8	8
Total	68	33	35

Secondary sources/plans for lack of adults; HORs collected the Cedar Creek trap.

Adult Transportation & Disposition – Early Segregated winters (aka Chambers)

Target	Rank	Quantity (range)	Location	Dates
Broodstock	1	65-70	Lewis Hatchery & Merwin Upstream Facility	Dec-Jan
Surplus -Food Quality	2	Above hatchery needs	Food Bank	Sept-Oct

Juvenile Release(s)

Release Strategy	1 group volitional followed by force out
Quantity	100,000
Release Age/size	1+/ Released at 5.5fpp
Release Location/Timing	Merwin Hatchery – April-May
Marking/Tagging strategy	<ul style="list-style-type: none"> • 100,000 Ad Only
Fish Management needs	<ul style="list-style-type: none"> • Ad clip required to allow harvest in mark-selective fisheries.
Evaluation Needs	<ul style="list-style-type: none"> • Adipose clip allows for evaluation of pHOS

Summary of Hatchery Configuration/Infrastructure:

- Adult collection for this program occurs at the Lewis River Hatchery and Merwin Upstream Fish Collection Facility.
- Broodstock is held at the Merwin Hatchery.
- Spawning and incubation occur at the Merwin Hatchery.
- Juvenile rearing occurs at the Merwin Hatchery in raceways.

Program Performance Metrics

pHOS level	Target: TBD (currently in recolonization phase) Recent Performance: unknown
pNOB levels	Target: NA Recent Performance: NA
Broodstock mining rate	Target: NA

Current Monitoring Program:

- Protocols for population monitoring are described in the Lewis River AOP (ATS 2022) associated with the H&S plan (PacifiCorp 2020).

Current Program #2: Late integrated winter (aka BWT Ad intact) Steelhead

Program Type: Integrated late winter

Program: Conservation (Reintroduction Outcome Goal)

Population Recovery Phase: Recolonization

Adult Broodstock Collection	
Broodstock Type	Integrated
Broodstock Source	In-basin natural-origin adults; F1s from late integrated winter program (BWT Ad intact)
Broodstock Collection Location/Methods	Lewis Hatchery and Merwin Upstream Collection Facility
pNOB target	100% but variable depending on mining rate

Collection timing:

Broodstock Collection (2023)

Week Ending	Brood Adults	Males	Females
18-Dec	1	1	0
25-Dec	1	0	1
1-Jan	0	0	0
8-Jan	1	1	0
15-Jan	1	0	1
22-Jan	0	0	0
29-Jan	1	1	0
5-Feb	0	0	0
12-Feb	1	0	1
19-Feb	2	1	1
26-Feb	1	1	0
5-Mar	2	1	1
12-Mar	2	1	1
19-Mar	2	1	1
26-Mar	2	1	1
2-Apr	3	2	1
9-Apr	4	2	2
16-Apr	7	4	3
23-Apr	6	3	3
30-Apr	6	3	3
7-May	4	2	2
14-May	3	2	1
21-May	3	2	1
28-May	2	1	1
Total	55	30	25

Secondary sources/plans for lack of adults; HOR (BWT) steelhead from the Cedar Creek trap.

Hatchery Adult Transportation & Disposition - Late integrated winter (aka BWT Ad intact)
Steelhead

Target	Rank	Quantity (range)	Location	Dates
Upper Lewis River	1	1239 - 1700*	Eagle Cliffs/Swift Forrest Camp	Jan-June
Broodstock	2	Backfill for NORs (up to 55)	Lewis Hatchery & Merwin Upstream Facility	Jan-June

*The H&S Plan (PacifiCorp 2020) identifies a 1700 fish transport target; however updated EDT analysis was used to identify the transport target of 1239, which is the current management target in use.

Juvenile Release(s)

Release Strategy	1 group volitional followed by force out.
Quantity (range)	50,000
Release Age/size	1+/Released at 6-8fpp
Release Location/Timing	Lewis Hatchery – May/June
Marking/Tagging strategy	<ul style="list-style-type: none"> 50,000 BWT Ad intact
Fish Management needs	<ul style="list-style-type: none"> BWT identifies conservation program returns from NOR steelhead Unclipped adipose restricts harvest
Evaluation Needs	<ul style="list-style-type: none"> BWT identifies program fish

Summary of Hatchery Configuration/Infrastructure:

- Adult collection for this program occurs at the Lewis River Hatchery and Merwin Upstream Fish Facility.
- Broodstock is held at the Merwin Hatchery.
- Spawning and incubation occur at the Merwin Hatchery.
- Juvenile rearing occurs at the Merwin Hatchery in raceways.

Program Performance Metrics

pHOS level	Target: TBD (currently in recolonization phase) Recent Performance: - Lower mainstem NF Lewis (via M-R tangle net surveys) <ul style="list-style-type: none"> 2016: 51% [90% CI: 41.3%, 60.4%] 2018: 27.2% [90% CI: 21.1%, 33.9%] Estimates were not generated for any other year. - Upper basin (transported from Merwin FCF to Swift); prelim. <ul style="list-style-type: none"> 2022: 78% 2023 (as of May 23rd): 81% Data exist for other years but have not been summarized.
pNOB levels	Target: 100% Recent Performance: ~100%
Broodstock mining rate*	Target: less than 30%

*Broodstock mining rate = percentage of natural-origin escapement from a specific return year that are used for broodstock.

Current Monitoring Program:

- Protocols for population monitoring are described in the Lewis River AOP (ATS 2022) associated with the H&S plan (PacifiCorp 2020).

Current Program #3: Summer Steelhead

Program Type: Segregated summer

Goal of Program: Harvest augmentation/mitigation

Population Recovery Phase: Natural population considered functionally extirpated

Adult Broodstock Collection	
Broodstock Type	Lewis segregated HOR fish
Broodstock Source	F1s from segregated summer program (in-basin)
Broodstock Collection location/methods	Lewis Hatchery Merwin Upstream Collection Facility
Integration Rate	pNOB goal of 0.0%

Collection timing:

Broodstock Collection Curve (2023)

Week Ending	Brood Adults	Males	Females
25-Jun	15	7	8
2-Jul	18	9	9
9-Jul	17	8	9
16-Jul	19	9	10
23-Jul	24	12	12
30-Jul	22	11	11
6-Aug	19	9	10
13-Aug	19	9	10
20-Aug	18	9	9
27-Aug	19	9	10
3-Sep	18	9	9
10-Sep	16	8	8
17-Sep	15	7	8
Total	239	116	123

Secondary sources/plans for lack of adults; HORs collected at the Cedar Creek trap.

Additional brood above program need are collected to mitigate for extended hold time before spawn.

Adult Transportation & Disposition – Summer Steelhead

Target	Rank	Quantity (range)	Location	Dates
Broodstock	1	224-260	Merwin Upstream Collection Facility & Lewis River Hatchery	June-Sept.
Surplus -Food Quality	2	Above recycling and hatchery needs	Food Bank	June-Nov

Juvenile Release(s)

Release Strategy	1 group volitional followed by force out
Quantity	235,000 (175,000 Merwin Hatchery+60,000 Echo net pens)
Release Age/size	1+/ Released at 5.5fpp
Release Location/Timing	Merwin Hatchery and Echo Park net pens – April-May
Marking/Tagging strategy	<ul style="list-style-type: none">• 235,000 Ad Only
Fish Management needs	<ul style="list-style-type: none">• Adipose clip required to allow harvest in mark-selective fisheries.
Evaluation Needs	<ul style="list-style-type: none">• Adipose clip allows for evaluation of pHOS

Summary of Hatchery Configuration/Infrastructure:

- Adult collection for this program occurs at the Lewis River Hatchery and Merwin Upstream Fish Facility.
- Broodstock is held at the Merwin Hatchery.
- Spawning and incubation occur at the Merwin Hatchery.
- Juvenile rearing occurs at the Merwin Hatchery in raceways.

Program Performance Metrics

pHOS level	Target: NA Population considered extirpated Recent Performance: NA
pNOB levels	Target: NA Recent Performance: NA
Broodstock mining rate	Target: NA

Current Monitoring Program:

- Protocols for population monitoring are described in the Lewis River AOP (ATS 2022) associated with the H&S plan (PacifiCorp 2020).

Current Lewis Steelhead Harvest Management Strategy

- Lewis River steelhead harvest strategies are the similar for both segregated winter and summer steelhead programs, except that summer steelhead AHN can be recycled to the lower Lewis for additional angler opportunity.
- Current (until we have management targets for NOR populations)

Area	Abundance		
	Low	Normal	Above Normal
Lower Lewis	Currently, pre-season management based on overall hatchery program needs	Currently, pre-season management based on overall hatchery program needs.	Currently, pre-season management based on overall hatchery program needs.
	Excess summer HORs ABOVE those needed for Lewis hatchery program recycled to lower Lewis	Excess summer HORs ABOVE those needed for Lewis hatchery program recycled to lower Lewis	Excess summer HORs ABOVE those needed for Lewis hatchery program recycled to lower Lewis.
	Restricted Mark-Selective fishery (reduced bag limit or full closure); (generally 3 hatchery adults > 20 inches).	Full Season Mark-Selective fishery (generally 3 hatchery adults >20 inches).	Full Season Mark-Selective fishery (generally 3 adults >20 inches). Potential for increased bag limits.
	In-season management based on actual hatchery/Merwin FF returns of HOR.	In-season management based on actual hatchery/Merwin FF returns of HOR.	In-season management based on actual hatchery/Merwin FF returns of HOR.
Ocean/Columbia River	Currently, pre-season management based on combined Lower Columbia forecast strength.	Currently, pre-season management based on combined Lower Columbia forecast strength.	Currently, pre-season management based on combined Lower Columbia forecast strength.
	Mark-Selective fishery (reduced bag limit or full closure); Seasons set via North of Falcon; Lewis stock part of CR steelhead aggregate.	Mark-Selective fishery (reduced bag limit or full closure); Seasons set via North of Falcon; Lewis stock part of CR steelhead aggregate.	Mark-Selective fishery (increased bag limit duration); Seasons set via North of Falcon; Lewis stock part of CR steelhead aggregate.
	In-season management based on hatchery returns.	In-season management based on hatchery returns.	In-season management based on hatchery returns.

Proposed Lewis Hatchery Steelhead Programs

Proposed Program #1: Late Winter “Stepping Stone Variant”

During the first phase of the transition, the existing integrated conservation winter-run program (50,000 smolt plant) will be maintained and the largest programmatic change will be to eliminate the segregated Chambers Creek winter-run program, and replace it using a “stepping stone” approach (HSRG 2014). This new winter-run, harvest mitigation hatchery program will be derived using adult returns from the winter-run conservation program. Unlike the Chambers Creek program, which is a fully segregated and domesticated stock derived from outside the lower Columbia River ESU, this new stepping stone program will use returning in-basin, first generation (F1) adults to maintain genetic continuity between the localized hatchery and natural-origin population thereby reducing genetic risks. This program is a slight variation from a traditional “stepping stone” program in that rather than slowly increasing the size of the integrated portion of the program as natural origin abundance/availability increases, this program will maintain consistent production goals for the integrated and stepping stone components until a second phase evaluation (described below) is completed. Also, this “stepping stone variant” program will only select BWT positive adults (F1s) for broodstock to propagate this program, meaning the broodstock will always be only one or two generations removed from natural origin parents, unlike a standard segregated program.

Program Type: “Stepping Stone Variant”

Population Recovery Phase: Recolonization

Goal of Program(s): Harvest

Timing for Transition: 2024 or post consultation with NOAA

Adult Broodstock Collection	
Broodstock Source	Lewis integrated HOR F1 adults (BWT Ad intact)
Broodstock Collection Location/Methods	Lewis Hatchery Merwin Upstream Fish Facility
Integration Rate	Segregated: 0.0

Priority	Collection Strategy	pNOB Target	Brood Source	Spawning Strategy
1	Normal HOR/NOR return, no shortage Collect at Lewis Hatchery and Merwin Upstream Fish Facility	Conservation Program: 100%; actual will be variable.	Conservation Prog. Lewis Basin NORs and F1s from integrated program (BWT/ Ad intact), if needed.	Conservation Prog. a. NOR x NOR when possible. b. NOR x HOR when necessary to backfill. c. Re-use NOR males once, if needed.

				Retain up to 30% Lewis Basin NORs.	
			Stepping Stone Var. 0%	Stepping Stone Var. F1s from integrated program (BWT/ Ad intact).	Stepping Stone Var. HOR x HOR
2	Low NOR, Normal HOR	Collect at Lewis Hatchery and Merwin Upstream Fish Facility	Conservation Program: 100%; actual will be variable and likely <100%	Conservation Prog. Lewis Basin NORs and F1s from integrated program (BWT/ Ad intact). Retain up to 30% Lewis Basin NORs.	Conservation Prog. a. NOR x NOR when possible, b. NOR x HOR when necessary to backfill. c. Re-use NOR males (potentially more than once) d. Accept a lower pNOB/integration rate
			Stepping Stone Var. 0%	Stepping Stone Var. F1s from integrated program (BWT/ Ad intact).	Stepping Stone Var. a. HOR x HOR
3	Low HOR return, Normal NOR	Collect at Lewis Hatchery, Merwin Upstream Fish Facility and potentially Cedar Creek trap	Conservation Program: 100%; actual will be variable	Conservation Prog. Lewis Basin NORs and F1s from integrated program (BWT/ Ad intact). Retain up to 30% Lewis Basin NORs.	Conservation Prog. a. NOR x NOR when possible, b. NOR x HOR when necessary to backfill. c. Re-use NOR males (potentially more than once)
			Stepping Stone Var. 0%	Stepping Stone Var. F1s from integrated program (BWT/ Ad intact). Consider using F2s (returns from stepping-stone variant program) as backfill with ACC approval.	Stepping Stone Var. a. HOR x HOR b. Re-use HOR males (potentially more than once) c. Accept we may be below program goal
4	Shortages across board	Collect at Lewis	Conservation Program:	Conservation Prog.	Conservation Prog. a. HOR x NOR when possible

	Hatchery, Merwin Upstream Fish Facility and potentially Cedar Creek trap	100%; actual will be variable and likely <100%	Lewis Basin NORs and F1s from integrated program (BWT/ Ad intact). Retain up to 30% Lewis Basin NORs Retain all HORs above demographic replacement needs, if needed.	<ul style="list-style-type: none"> b. Re-use NOR males (potentially more than once) c. Accept we may be below program goal d. Accept a lower pNOB/integration rate e. May consider single year exception to demographic replacement to achieve broodstock goals, depending on seeding levels.
		Stepping Stone Var. 0%	Stepping Stone Var. F1s from integrated program (BWT/ Ad intact). Consider using F2s (returns from stepping-stone variant program) as backfill with ACC approval.	Stepping Stone Var. <ul style="list-style-type: none"> a. HOR x HOR b. Re-use HOR males (potentially more than once) c. Accept we may be below program goal

Broodstock Collection and Timing:

- Collect 50 Males and 60 Females (BWT Ad intact)
 - The broodstock collection goal for this program will be proportionally higher than the integrated conservation program.
 - This relatively higher goal will help ensure ripe fish are available when spawning events need to occur and allow for additional egg take/grading of production.
- Number and timing of spawning events will be determined during the implementation phase of the project via the AOP with the following goals:
 - Condensing the number of spawning events to:
 - maximize the ability to rear juveniles to an optimal smolt-release size that maximizes post-release survival and minimizes residualism. Spawning fish later in the spring decreases the ability to rear juveniles to appropriate release sizes.
 - Operate the program using the current hatchery infrastructure which is currently limited by early-rearing vessels.
 - Minimize impact to the relative return timing of hatchery fish transported upstream of Merwin Dam.
- Excess broodstock above hatchery needs would be available for transport upstream of Merwin Dam.
- Broodstock collection will start February 1st.
- Collection rate will be determined during the implementation phase of the project via the AOP to achieve adequate collection of broodstock by the time of spawning events.

- Program performance will drive adaptive management of the program through annual review during AOP development.

Adult Transportation & Disposition

Lewis HORs - Winter Steelhead Stepping Stone Variant (Ad Only)

Target Area	Rank	Quantity (range)	Location	Dates
Surplus	1	All fish above hatchery needs and after harvest.	Food grade – Food bank/tribal donation Non-food grade -Disposal (i.e. landfill)	Dec-June
Broodstock	2	In shortage years, consider using F2s (returns from stepping-stone variant program) as backfill with ACC approval.	Merwin Upstream Fish Facility and Merwin Hatchery Cedar Creek trap (potentially)	Feb-May

Lewis HORs - Winter Steelhead Conservation Program (BWT Ad intact)

Target	Rank	Quantity (range)	Location	Dates
Upper Lewis River	1	1239 - 1700*	Eagle Cliffs/Swift Forrest Camp	Jan-June
Broodstock	2	100-110	Lewis Hatchery & Merwin Upstream Facility	Jan-June

*The H&S Plan (PacifiCorp 2020) identifies a 1700 fish transport target; however updated EDT analysis was used to identify the transport target of 1239, which is the current management target in use.

Juvenile Release(s)

Release Strategy	1 group - volitional followed by force out.
Quantity (range)	75,000
Release Age/size	1+ / Released at 5.5fpp
Release Location/Timing	Merwin Hatchery – April-May
Marking/Tagging strategy	<ul style="list-style-type: none"> • 75,000 Adipose fin-clipped
Fish Management needs	<ul style="list-style-type: none"> • Differential mark needed to identify stepping -stone variant program returns from integrated conservation program. The current marking strategy is an Adipose fin clip only for the harvest program and BWT with Adipose intact for the conservation program. • Adipose clip required to allow harvest in mark-selective fisheries
Evaluation Needs	<ul style="list-style-type: none"> • Differential marking from integrated program allows for independent evaluation of these two programs. • Adipose clip allows for evaluation of pHOS

Summary of Hatchery Configuration/Infrastructure:

- Adult collection for this program would occur at the Lewis River Hatchery and Merwin Upstream Fish Facility.
- Broodstock is held at the Merwin Hatchery.
- Spawning and incubation occur at the Merwin Hatchery.
- Juvenile rearing occurs at the Merwin Hatchery in raceways.

Proposed Monitoring Program:

- Protocols for population monitoring will be described in the Lewis River AOP associated with the H&S plan (PacifiCorp 2020).
-

Proposed Program #2: Late winter integrated (aka BWT Ad intact) steelhead

Program Type: Integrated late winter

Recovery Phase: Recolonization

Goal of Program(s): Conservation

This program will remain the same as the current late integrated winter steelhead program described earlier in this document. To avoid confusion, program information was not repeated here. A description of broodstock collection, adult transportation and disposition for the integrated late winter conservation program as it relates to the stepping stone variant program is described in the previous section (Proposed Program #1: Late Winter “Stepping Stone Variant”).

Proposed Program #3 Lewis Summer Steelhead

Program Type: Segregated summer

Recovery Phase:

Goal of Program(s): Harvest

Adult Broodstock Collection	
Broodstock Source	Lewis segregated HOR fish
Broodstock Collection location/methods	Lewis Hatchery Merwin Upstream Fish Facility
Integration Rate	Segregated: 0.0

Collection Timing:

Estimated Broodstock Collection Curve

Week Ending	Brood Adults	Males	Females
25-Jun	16	8	8
2-Jul	19	9	10
9-Jul	19	9	10
16-Jul	21	10	11
23-Jul	27	13	14

30-Jul	24	12	12
6-Aug	20	10	10
13-Aug	21	10	11
20-Aug	20	10	10
27-Aug	21	10	11
3-Sep	20	10	10
10-Sep	17	8	9
17-Sep	16	8	8
Total	261	127	134

Secondary sources/plans for lack of adults; HORs collected the Cedar Creek trap.

Adult Transportation & Disposition

Target	Rank	Quantity (range)	Location	Dates
Broodstock	1	250-300	Merwin Upstream Fish Facility and Merwin Hatchery	June-Sept
Surplus -Food Quality	2	Above recycle and hatchery needs	Food Bank	Sept-Oct

Juvenile Release(s)

Release Strategy	1 group volitional followed by force out
Quantity	260,000 (200,000 Merwin Hatchery+60,000 Echo net pens)
Release Age/size	1+ / Released at 5.5fpp
Release Location/Timing	Merwin Hatchery – April-May
Marking/Tagging strategy	<ul style="list-style-type: none"> 260,000 Ad Only
Fish Management needs	<ul style="list-style-type: none"> Adipose clip required to allow harvest in mark-selective fisheries.
Evaluation Needs	<ul style="list-style-type: none"> Adipose clip allows for evaluation of pHOS

Summary of Hatchery Configuration/Infrastructure:

- Adult collection for this program occurs at the Lewis River Hatchery and Merwin Upstream Collection Facility.
- Broodstock is held at the Merwin Hatchery.
- Spawning and incubation occur at the Merwin Hatchery.
- Juvenile rearing occurs at the Merwin Hatchery in raceways.

Program Performance Metrics

pHOS level	Target: NA Population considered extirpated Recent Performance: NA
pNOB levels	Target: NA Recent Performance: NA
Broodstock mining rate	Target: NA

Proposed Monitoring Program:

- Protocols for population monitoring will be described in the Lewis River AOP associated with the H&S plan (PacifiCorp 2020).

Lewis Winter and Summer Steelhead Fishery Management Strategy

Currently, directed angling and harvest opportunity for hatchery steelhead in the NF Lewis is limited to areas below Merwin dam while implementation of fish passage and reintroduction efforts above Merwin Dam continue. Future changes to steelhead fishery management in the Upper Lewis (i.e., areas above Merwin Dam) will require both technical and policy level discussion. These discussions are contingent on development of improved modeling identified in the Aquatic Monitoring and Evaluation Plan for the Lewis River (AMEP) to better quantify key biological reference points needed for setting management targets and evaluating thresholds established in the Settlement Agreement (e.g., recovery phase triggers, transport goals, ocean recruits, etc.). The role of hatchery fish in future harvest opportunities also has not been discussed/established.

The following fishery management strategies are divided into two tables. The first describes the proposed strategy in the interim period while modeling efforts are completed and technical/policy discussions are carried out. The second provides a conceptual strategy that includes both hatchery and natural-origin fish fishery options. This “long-term” conceptual strategy will be adjusted to reflect decisions made in future technical/policy discussions.

Proposed fishery management framework (until biological reference points and management targets for NOR populations are updated)

Interim/Recolonization Phase

Area	Abundance		
	Low	Normal	Above Normal
Lower Lewis	Currently, pre-season management based on overall hatchery program needs	Currently, pre-season management based on overall hatchery program needs.	Currently, pre-season management based on overall hatchery program needs.
	Excess summer HORs AHN recycled to lower Lewis	Excess summer HORs AHN recycled to lower Lewis	Excess summer HORs AHN recycled to lower Lewis
	Restricted Mark-Selective fishery (reduced bag limit or full closure)	Full Season Mark-Selective fishery (generally 3 hatchery adults >20 inches).	Full Season Mark-Selective fishery (generally 3 adults >20 inches). Potential for increased bag limits.
	In-season management based on actual hatchery/Merwin FCF returns of HOR.	In-season management based on actual hatchery/Merwin FCF returns of HOR.	In-season management based on actual hatchery/Merwin FCF returns of HOR.
Ocean/Columbia River	Currently, pre-season management based on combined Lower Columbia forecast strength.	Currently, pre-season management based on combined Lower Columbia forecast strength.	Currently, pre-season management based on combined Lower Columbia forecast strength.
	Mark-Selective fishery (reduced bag limit or full closure); Seasons considered via North of Falcon; Lewis	Mark-Selective fishery (reduced bag limit or full closure); Seasons considered via North of Falcon; Lewis	Mark-Selective fishery (increased bag limit duration); Seasons considered via North of

	stock part of CR steelhead aggregate.	stock part of CR steelhead aggregate.	Falcon; Lewis stock part of CR steelhead aggregate.
	In-season management based on hatchery returns.	In-season management based on hatchery returns.	In-season management based on hatchery returns.

Long Term /Local Adaptation Phase

Area	Abundance		
	Low	Normal	Above Normal
Lower Lewis	Utilize Lewis specific forecasts (once developed) for pre-season management. Restricted Mark-Selective fishery (reduced bag limit or full closure). In season management based on actual hatchery /Merwin FCF returns of HOR.	Utilize Lewis specific forecasts (once developed) for pre-season management. Once seeding/escapement goals are established and met: Full Non Mark Selective fishery (HOR/NOR) Bag limits TBD. In season management based on actual hatchery/Merwin FCF returns of HOR/NOR.	Utilize Lewis specific forecasts (once developed) for pre-season management. Once seeding/escapement goals are established and met: Full Non Mark Selective fishery (HOR/NOR); Potential increased Bag limits. In season management based on actual Hatchery/Merwin FCF returns of HOR/NOR.
	Excess summer HORs AHN for Lewis hatchery program recycled to lower Lewis	Excess summer HORs AHN for Lewis hatchery program recycled to lower Lewis	Excess summer HORs AHN for Lewis hatchery program recycled to lower Lewis
	Restricted Mark-Selective fishery (reduced bag limit or full closure).	Full Season Mark-Selective fishery (generally 3 hatchery adults >20 inches).	Full Season Mark-Selective fishery (generally 3 adults >20 inches). Potential for increased bag limits.
	In-season management based on actual hatchery/Merwin FCF returns of HOR.	In-season management based on actual hatchery/Merwin FF returns of HOR.	In-season management based on actual hatchery/Merwin FF returns of HOR.
Upper Lewis	Utilize Lewis specific forecasts (once developed) for pre-season management. Fishery on excess HORs transported to upper Lewis AHN to replace NORs used for broodstock (hatchery equivalents).	Utilize Lewis specific forecasts (once developed) for pre-season management. Fishery on excess HORs transported to upper Lewis AHN to replace NORs used for broodstock (hatchery equivalents). Potential NOR harvest if above escapement goals	Utilize Lewis specific forecasts (once developed) for pre-season management. Fishery on excess HORs transported to upper Lewis AHN to replace NORs used for broodstock (hatchery equivalents). Potential NOR harvest if above escapement goals
	Once seeding/escapement goals are established: Restricted Mark-Selective fishery (reduced bag limit or full closure); In-season management based on actual	Once seeding/escapement goals are established and met: Full Season Non Mark-Selective fishery (HOR/NOR bag limits TBD).	Once seeding/escapement goals are established and met: Full Season Non Mark-Selective fishery (HOR/NOR bag limits TBD). In-season management based

	hatchery/Merwin FCF returns of HOR/NOR.	In-season management based on actual hatchery/Merwin FCF returns of HOR/NOR.	on actual hatchery/Merwin FCF returns of HOR/NOR
Ocean/Columbia River	Mark-Selective fishery Ocean fishery is negligible Lewis stocks part of LCR steelhead aggregate for Columbia River Fishery Management. Seasons considered via North of Falcon	Mark-Selective fishery Ocean fishery is negligible Lewis stocks part of LCR steelhead aggregate for Columbia River Fishery Management. Seasons considered via North of Falcon	Mark-Selective fishery Ocean fishery is negligible Lewis stocks part of LCR steelhead aggregate for Columbia River Fishery Management. Seasons considered via North of Falcon

Harvest Management Notes:

Steps needed to achieve long term management:

- Establish Rmax and return targets
- Achieve juvenile collection efficiency goals at all downstream collection points
- Determine hatchery equivalent value used for NOR demographic replacement and establish general management guideline for NOR replacement
- WDFW - update FMEP to include above strategy and consult with NMFS. Verify ESA permitting needs with NMFS.
- Forecasts by Lewis basin specific HOR/NOR instead of aggregate
- Develop earlier in-season predictors of total return for management purposes.

Monitoring and Analysis needs associated with Adaptive Management trigger points

- Monitor SARs for program.
- Evaluate fishery contributions and harvest rates.
- Complete analysis of SARs for current programs (“stepping stone variant” and the late integrated winter (aka BWTs) steelhead) to determine what impacts transitioning to one integrated program will have on adult returns and how this transition would affect recovery.
- Following construction of juvenile and adult passage facilities, evaluation of each facility will be necessary to determine if assumptions for basin productivity and survival are correct.

Bio-programming considerations for all programs (capacity, water, how it fits with other programs):

- Broodstock will be held at the Merwin Hatchery.
- Eggs will be incubated at Merwin Hatchery
- Juvenile rearing and release will occur from the Merwin Hatchery in raceways and the Echo Park net pens.

List of Reference Materials

A vision for Salmon and Steelhead Goals to Restore Thriving Salmon and Steelhead to the Columbia River Basin. Phase 2 Report of the Columbia Basin Partnership (CBP) Task Force of the Marine Fisheries Advisory Committee- October 2020. https://s3.amazonaws.com/media.fisheries.noaa.gov/2020-10/MAFAC_CRB_Phase2ReportFinal_508.pdf?null

Aquatic Monitoring and Evaluation Plan for the Lewis River-Second Revision (Version3). PacifiCorp. April 2022. Available online: <2022-LR-Mon-Eval-Plan.pdf> (pacificorp.com)

ATS (North fork Lewis River Aquatic Technical Subgroup). 2022. Annual Operating Plan (AOP). Hatchery and Supplementation Program; North Fork Lewis River. North fork Lewis River Aquatic Technical Subgroup. December 2022.

HSRG (Hatchery Scientific Review Group). 2020. Developing recovery objectives and phase triggers for salmonid populations. Available online: [HSRG 2020 White Paper Final Draft.pdf](HSRG_2020_White_Paper_Final_Draft.pdf) (streamnet.org)

HSRG (Hatchery Scientific Review Group). 2014. On the Science of Hatcheries: An updated perspective on the role of hatcheries in salmon and steelhead management in the Pacific Northwest. A. Appleby, H.L. Blankenship, D. Campton, K. Currens, T. Evelyn, D. Fast, T. Flagg, J. Gislason, P. Kline, C. Mahnken, B. Missildine, L. Mobernd, G. Nandor, P. Paquet, S. Patterson, L. Seeb, S. Smith, and K. Warheit. June 2014; revised October 2014. Available online: <http://hatcheryreform.us>

PacifiCorp and Cowlitz County PUD. 2020. Lewis River Hatchery and Supplementation Plan- FINAL (FERC Project Nos. 935, 2071, 2111, 2213). December 2020 Available online: <Microsoft Word - HS PLAN FINAL 2020.docx> (pacificorp.com)

Appendix A

Please see attached as separate document.

Strategy evaluation of future NF Lewis winter steelhead hatchery programs (short Version for ATS).pdf

This slide deck was presented by Kale Bentley (WDFW) to the Lewis River Aquatic Technical Committee (ATS) on April 27, 2023. This presentation was intended to provide information and context of the decision process and conclusions to initiate the winter steelhead “stepping stone variant” program.

Lewis River Fish Passage Report

May 2023

Merwin Fish Collection Facility and General Operations

During the month of May, 2,488 fish were collected at the Merwin Dam Adult Fish Collection Facility (MFCF), which was a 204% increase over the April total of 818. Spring Chinook, were the most prevalent species collected (n= 2,239), followed by winter steelhead (n= 172), summer steelhead (n= 69), and Cutthroat trout (n= 8).

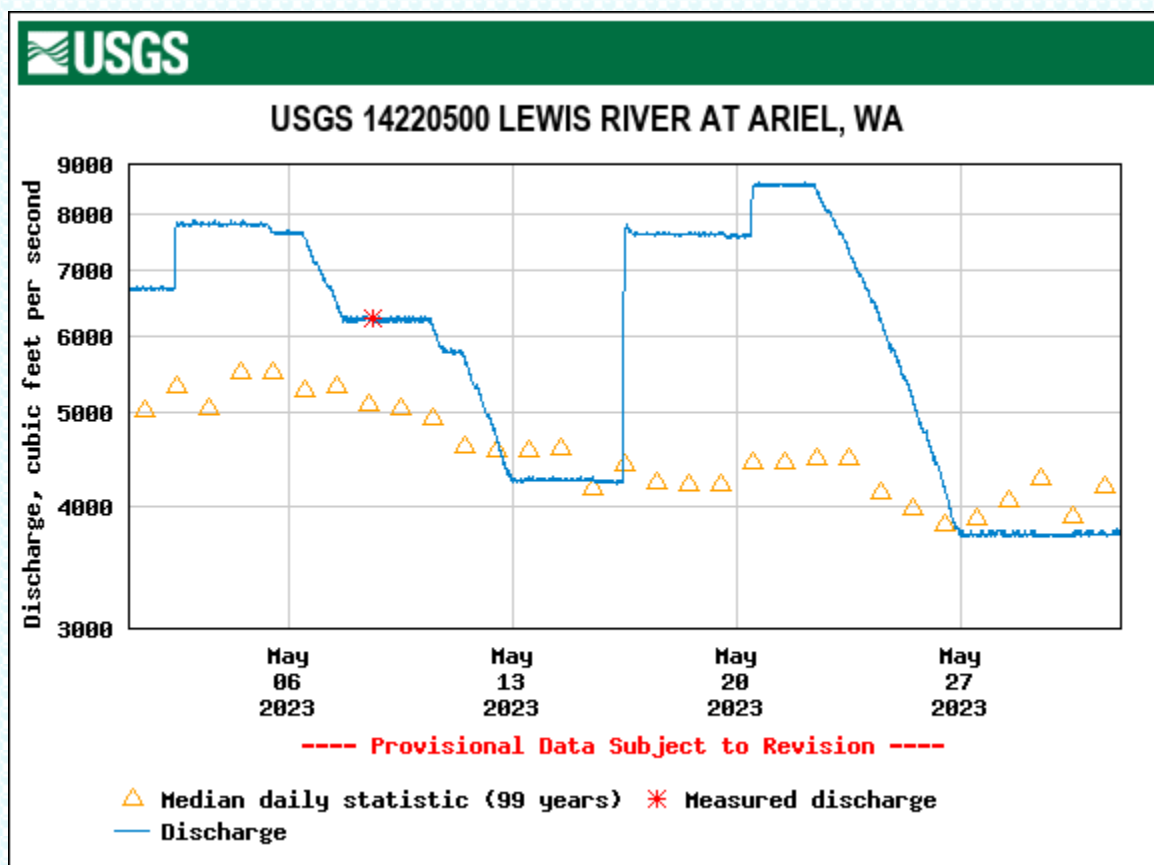


Figure 1. Flow in cubic feet per second recorded at the USGS Ariel, WA gauge (14220500) located immediately downstream of Merwin Dam.

The MFCF lift and conveyance system were operational for the entirety of the month of May. Flows below Merwin Dam ranged from approximately 3,700 to 8,500 cubic feet per second in May (Figure 1).

Fifteen of the fish collected at the MFCF in May had been previously PIT-tagged. Winter steelhead made up the majority of the previously tagged fish collected this month (n= 11), followed by cutthroat trout (n= 2), and spring Chinook (n= 2). All of these fish were tagged in the Lewis River Basin. For calendar year 2023 to-date, a total of 36 previously PIT tagged fish have been collected at the MFCF (30 winter steelhead, three cutthroat trout, two spring Chinook, and one natural origin

coho). Tagging history and detections of PIT tagged fish passing through the Lewis River Fish Passage Facilities are available through Columbia Basin PIT Tag Information System (PTAGIS).

Upstream Transport

A total of total of 1,515 adult fish were transported upstream in May, which is an increase over the 549 fish that were transported in April. The majority of the fish transported upstream were spring Chinook (n= 1,356). In addition to the spring Chinook, 151 winter steelhead (91 BWT and 60 NOR), and eight cutthroat trout were also transported upstream of Swift Dam. So far in 2023, a total of 1,420 spring Chinook (1,183 HOR and 237 NOR), 801 winter steelhead (628 BWT and 173 NOR), 38 late run coho, and 28 cutthroat trout have been transported upstream of Swift Dam.

Floating Surface Collector (FSC)

The Swift Reservoir Floating Surface Collector (FSC) was taken out of service on May 14 due to extreme debris loading, which was the result of the filling of Swift Reservoir combined with strong east winds. The facility was able to return to service the on May 15, after PacifiCorp cleared the debris from the fish channel and sample tanks.

A total of 30,922 fish were collected at the Swift FSC in May, which a nearly twenty fold increase over the April total of 1,607. The majority of the fish collected were juvenile coho (n= 24,476). Steelhead (n= 3,758), spring Chinook (n= 1,212), hatchery rainbow trout (n= 1,144), cutthroat trout (n= 311), and Bull Trout (n= 4) made up the balance of fish collected in May (Table 1). All Bull Trout were returned to Swift Reservoir. Bull Trout fork lengths were: 550mm, 580 mm, 590 mm, and 650 mm.

Table 1: Total number of out-migrating juvenile salmonids (by species) collected at the Swift FSC during the month of May since 2013.

Run Year	May Collection Totals by Run Year at Swift FSC				
	Coho	Chinook	Steelhead	Cutthroat	TOTAL
2013	7,358	377	100	264	8,099
2014	2,435	216	311	515	3,477
2015	14,912	1,938	887	333	18,070
2016	23,799	233	1,392	551	25,975
2017	12,963	738	1,565	149	15,415
2018	18,965	190	6,651	329	26,135
2019	55,788	2,753	2,321	473	61,335
2020	11,870	1,104	2,356	245	15,575
2021	18,280	188	4,371	370	23,209
2022	23,450	65	3,604	466	27,585
2023	24,476	1,212	3,758	311	29,757

Fish Facility Report
Swift Floating Surface Collector
May 2023

Day	Coho			Chinook			Steelhead				Cutthroat		Bull Trout	Planted Rainbow	Total	
	fry	parr	smolt	fry	parr	smolt	fry	parr	smolt	kelt	fry	<13 in				> 13 in
1	5		50			22			34			4	1	1	14	131
2		3	20	14		1			25	3		4	1	0	4	75
3		5	26			60			42	2		1		0	8	144
4	1	1	63	1		33			64			2		0	11	176
5			27			2			7			2		0	4	42
6		1	21		1	9			29			2	1	1	8	73
7		2	54	1		11			48	1		3		1	22	143
8			106			132		1	175			5		0	46	465
9	6		36			26			47	2		4		0	21	142
10	5	20	99			28			165			17		0	51	385
11	5		152	4		55			156	2				0	13	387
12	1	4	132	4		18			188			4		0	12	363
13			33			49			78			1		0	20	181
14																
15			53			10			80				1	0	8	152
16			33			12			28					0	20	93
17	2		871	1		38		1	137			11		0	35	1096
18			793			16			200	2		7	14	1	85	1118
19	17		1113	10		12			269			31	1	0	110	1563
20			1297	2		22		1	257			27		0	134	1740
21			1444			0			390			29		0	86	1949
22	3		443	3		4			80	2		8		0	27	570
23			571	2		1			123			11	4	0	43	755
24			839	15		111			138	1		22	3	0	39	1168
25	3		947			16			114			20		0	63	1163
26		2	1891	1		23			160			11	4	0	37	2129
27			2082			130			171				1	0	22	2406
28			4249			230			138					0	13	4630
29	6		1578	4	11	6			83	2		22		0	54	1766
30			3064			46			286			13		0	99	3508
31	3		2294	4		11			43			18	1	0	35	2409
Monthly	57	38	24381	66	12	1134	0	3	3755	17	0	279	32	4	1144	30922
Total	199	5066	26593	155	29	2148	2	29	3970	17	0	371	46	6	1378	40009